

Wyaconda River

WATERSHED

INVENTORY AND ASSESSMENT

PREPARED BY:

Chris Williamson
and

Brian Todd

January 2005

Missouri Department of Conservation

For additional information contact

Fisheries Regional Supervisor

Missouri Department of Conservation

2500 South Halliburton, Kirksville, MO 63501

EXECUTIVE SUMMARY

The Wyaconda River basin is located in the Glaciated Plains Natural Division of southeast Iowa and northeast Missouri. The basin drains 458 square miles of land, of which 336 square miles lie within the state of Missouri. The Wyaconda River, a fifth order stream, is the largest within the basin and enters the Mississippi River above LaGrange, MO. There are 18 third order and larger streams within the basin.

The upper basin differs to some extent from the lower basin. The upper basin is characterized by soils from the Deep Loess and Drift general soil associations and the topography is rolling to hilly with some wide, nearly level ridge tops and bottom land. The lower basin is characterized by soils from the Central Mississippi Valley Wooded Slopes and the topography is dominated by more rugged hills and broad floodplains. Stream gradients are fairly low throughout the basin, with the exception of a few small tributaries in the lower basin.

When the first settlers arrived in the basin, approximately 50% of the land was tall grass prairie. Agriculture became the dominated land use and continues to this day. Forty-two percent of the basin is currently used for croplands, while 40% of the basin remains in grasslands. The impact of agriculture on basin streams is significant. Channelization of streams and sedimentation from poor land practices continue to be the major management problems in the basin. Excessive sediment from non-point sources is the main water quality concern, with no significant impact from point sources. Both channelization and sedimentation reduce aquatic habitat and disrupt ecological processes within these streams.

Forty-five species of fish were found in recent surveys from 1988. The dominant fish families were the minnows (17 species), catfishes (7 species), sunfishes (7 species), suckers (6 species), and perches (5 species). The most common and abundant species collected in recent surveys were the red shiner (*Cyprinella lutrensis*) and bigmouth shiner (*Notropis dorsalis*). Sportfish (13 species that provide angling opportunity) comprised approximately 3% of all fish collected in basin streams. Channel catfish (*Ictalurus punctatus*), probably the most popular game species, occurred at 40% of all sites, but accounted for only 1% of the total fish collected. Three species found in the basin prior to 1988 and not found in recent surveys include the following: Mississippi silvery minnow (*Hybognathus nuchalis*), bluntnose darter (*Etheostoma chlorosomum*), and ghost shiner (*Notropis buchanani*), which were all last found in 1941. All three species have likely been extirpated from the basin. No threaten or endangered species have been collected in recent surveys.

Due the highly altered state of the upper basin streams, public use is minimal. Habitat reductions from channelization and excessive sedimentation have made the fish community less appealing to anglers. Boaters are scarce due to the same channel alterations. Opportunities for improvement do exist by working with landowners on a watershed scale to reduce sedimentation and channelization. Other management opportunities include: acquiring new and develop existing stream access areas to increase public use, passively restoring riparian areas on MDC areas, assisting landowners with corridor restoration, long-term aquatic community monitoring, fishery research needs, assisting citizen-led watershed conservation efforts, and educating youth.

Acknowledgements

We would like to thank Ross Dames and Travis Moore for their assistance with manuscript preparation and field sampling. We also thank Randy Haydon for his effort in field sampling and data entry. Thanks to Bob Hrabik, who performed the field sampling in 1988. Resource and Assessment Monitoring Program data was provided by Matt Combes. Matt Matheny assisted with formatting of the final document and provided guidance. Harlan Kitch, George Smith, Craig Fuller, Darrick Garner, and Kyle Reno assisted with field sampling.

TABLE OF CONTENTS

<i>WATERSHED LOCATION</i>	<i>GEOLOGY/GEOMORPHOLOGY</i>
Watershed Geography	Physiographic Region and Geology, Soils
Watershed Area	Stream Channel Gradients
Stream Order	<i>WATER QUALITY AND USE</i>
<i>LAND USE</i>	Designed Beneficial Uses
Historical Land Use	Chemical Quality of Streamflow
Modern Land Use	Non-Point Source Pollution
Soil Conservation Projects	Point Source Pollution
<i>HYDROLOGY</i>	Concentrated Animal Feeding Operations
Precipitation	<i>HABITAT CONDITIONS</i>
USGS Gaging Stations	Channel Alterations & Habitat Problems
Permanence of Flow & Average Annual Discharge	Unique Riparian Habitats
Base Flow and Low-Flow Frequency Data	Habitat Conservation Projects
Flow Duration	Corps of Engineers Jurisdiction
Flood Frequency	<i>ANGLER GUIDE</i>
Dam and Hydropower Influences	<i>STREAM OPPORTUNITIES</i>
Major Water Users	<i>LITERATURE CITED</i>
<i>BIOTIC COMMUNITY</i>	<i>GLOSSARY</i>
Fish Community	<i>RELATED INFORMATION</i>
Threatened and Endangered Species	
Fish Stockings	
Aquatic Invertebrates	

LIST OF TABLES

Hydrology

Table 1. Stream discharge (cfs) for the period of record at the gage location on the Wyaconda River above Canton, MO.

Table 2. One through 60-day low flow discharges at 2, 5, 10, and 20 year recurrence intervals for the Wyaconda River USGS gaging station above Canton, MO.

Table 3. Predicted flood discharges for 2 to 500 year intervals at USGS gaging station on the Wyaconda River above Canton, MO.

Land Use

Table 4. Lands owned by the Missouri Department of Conservation within the Wyaconda watershed.

Biotic

Table 5. 1988 Complete Survey Sample Sites in the Missouri portion of the Wyaconda River Watershed.

Table 6. Fish species collected from the Wyaconda River watershed.

Table 7. Species of mussels found dead or alive in the Wyaconda River watershed during 1991.

Table 8. Aquatic insects collected from the Wyaconda River watershed.

Management Problems and Opportunities

Table 9. Ten useful watershed conservation principles.

Table 10. Internet websites containing important information for Missouri watershed planners.

LIST OF FIGURES

Figure lo. General location of the Wyaconda River Watershed.

Figure nd. Location of the Wyaconda River Watershed with the natural divisions of Missouri.

Figure ge. Geological formations of the Wyaconda River Watershed.

Figure lu. Land use in the Wyaconda River Watershed.